second light emitting device comprising a second desired signal portion and a second undesired signal portion; and

a closed loop adaptive system responsive to said first and second signals to provide at least first and second output signals for use in calculating oxygen saturation of said blood.

110. (Amended) In a pulse oximeter wherein the improvement comprises effecting intensity signals resulting from light of first and second wavelengths attenuated by body tissue carrying pulsing blood by the operation of a least squares algorithm, which intensity signals, once effected, are used in the calculation of oxygen saturation.

111. (Amended) The pulse oximeter of Claim 110, wherein the effect comprises reducing noise in the intensity signals.

112. (Amended) The pulse oximeter of Claim 110, wherein a microprocessor operates the least squares algorithm, the microprocessor having digital representations of the intensity signals as inputs.

171. (Amended) In a pulse oximeter wherein the improvement comprises effecting intensity signals resulting from light of first and second wavelengths attenuated by pulsing blood by operation of an algorithm that responds to at least one error signal, wherein the intensity signals, after being effected, are used in the calculation of oxygen saturation.

172. (Amended) The pulse oximeter of Claim 171, wherein the effect comprises reducing noise in the intensity signals.

185. (Amended) In a pulse oximeter wherein the improvement comprises, comparing a signal and an estimate of the signal in order to produce an effect on intensity signals resulting from light of first and second wavelengths attenuated by pulsing blood, which intensity signals are then used in the calculation of oxygen saturation.

186. (Amended) The pulse oximeter of Claim 185, wherein the effect comprises reducing noise in the intensity signals.

194. (Amended) In a pulse oximeter, wherein the improvement comprises a processor that adjusts its own transfer function using a least squares algorithm to effect intensity signals resulting from light of first and second wavelengths attenuated by pulsing blood in a patient.

-2-